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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,826	06/11/2001	Bryan F. Keener	243768070US	3467
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PERKINS COIE LLP PATENT-SEA P.O. BOX 1247 SEATTLE, WA 98111-1247			FERRIS III, FRED O	
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			2128	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/879,826	Applicant(s) KEENER, BRYAN F.	
	Examiner Fred Ferris	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-33 and 37-39 is/are allowed.
- 6) ☒ Claim(s) 1-29 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/11/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-39 have been presented for examination based on applicant's disclosure filed on 11 June 2001. Claims 1-29 and 34-36 have been rejected by the examiner. Claims 30-33 and 37-39 have been allowed over the prior art of record.

Incorporation by Reference

2. The attempt to incorporate subject matter into this application by reference to Attorney docket no. 243768071US is improper because only US Patents and U.S. Patent Applications may be incorporated by reference. (See specification page 1) MPEP 608.01(p) [R-2] (Completeness) recites the following:

*"A. Review of Applications Which Are To Issue as Patents.
An application as filed must be complete in itself in order to comply with 35 U.S.C. 112. Material nevertheless may be incorporated by reference, Ex parte Schwarze, 151 USPQ 426 (Bd. Ape. 1966). An application for a patent when filed may incorporate "essential material" **by reference to (1) a U.S. patent, (2) a U.S. patent application publication, or (3) a pending U.S. application**, subject to the conditions set forth below. "Essential material" is defined as that which is necessary to (1) describe the claimed invention, (2) provide an enabling disclosure of the claimed invention, or (3) describe the best mode (35 U.S.C. 112). In any application which is to issue as a U.S. patent, essential material may not be incorporated by reference to (1) patents or applications published by foreign countries or a regional patent office, (2) non-patent publications, (3) a U.S. patent or application which itself incorporates "essential material" by reference, or (4) a foreign application."*

The disclosure is therefore objected to since applicants have not properly referenced the corresponding U.S. Patent application numbers. Corrective action is required.

Drawings

3. *Applicant's drawings submitted on 31 December 2001 have been approved by the examiner.*

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. ***Claims 4, 5, 9, 15, 16, 18, 21-23, 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.***

Per claims 4, 5, 9, 15, 16, 18, 21-23, 34-36: These claims each include limitations relating to "using an equation that is at least substantially similar to equation (1-3)" of applicant's specification. MPEP 2171 requires the following:

2171 Two Separate Requirements for Claims Under 35 U.S.C. 112, Second Paragraph

The second paragraph of 35 U.S.C. 112 is directed to requirements for the claims:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

There are two separate requirements set forth in this paragraph:

(A) the claims must set forth the subject matter that applicants regard as their invention; and

*(B) the claims must particularly point out and **distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.***

In this case, the term "at least substantially similar" renders the claim indefinite.

*The examiner submits that claims 4, 5, 9, 15, 16, 18, 21-23, 34-36 do not **distinctly define the metes and bounds of the claimed subject matter** because it is unclear specifically what would constitute a "substantially similar" equation. In general, the language of the claims 4, 5, 9, 15, 16, 18, 21-23, and 34-36 **fails to point out specifically what is included or excluded by the language of the claims** and a person of ordinary skill in the art would be at odds to determine the exact **scope of the claim**.*

*The examiner suggests that applicants amend the claims to recite the **specific equation being claimed** in order to distinctly define the subject matter that applicants regard as the invention.*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0156127 A1 issued to Kleyman in view of applicant's admission that determining the Z Score is well known in the art.

Per independent claim 1: Kleyman discloses a method of determining the dimensional accuracy of a translated 3-D computer model (page 1, 0012, page 2, 0013) relative to a master (target) model (page 1, 0012) inclusive of obtaining the geometric volume properties (page 3, 0032-0034 – object geometric information), obtaining translated model properties (page 4, 0043-0045, Fig. 4); and determining if the translated model is accurate or inaccurate based on a predetermined value (page 4, 0046-0052, Fig. 4). (Also see: Abstract, Background of Invention, Figs. 2-4, 6)

Kleyman does not explicitly disclose determining a Z score based on model geometric properties.

Applicant's specification indicates that, "the z score will be recognized by those of ordinary skill in the art as representing the number of standard deviations between a process mean value and a specified process limit". (Specification: page 6, line 31) Hence, the limitations relating to determining a Z score based on model geometric properties would have been well-known to one of ordinary skill in the art at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Kleyman relating to a method for determining the dimensional accuracy of a translated 3-D computer model relative to a master (target) model, with the well-known technique determining the Z score (as

admitted by applicants), to realize the claimed invention. An obvious motivation exists since this area of technology is highly competitive with many CAD systems and CNC machines available in the market place, and large amounts of money being spent in product development and improvement (See Kleyman, Background/Summary).

Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place, and having access to the teachings of Kleyman, would have knowingly modified the teachings of Kleyman with the well-know technique of determining the Z score, in order to reduce development time and cost.

Per dependent claim 2: Kleyman discloses obtaining and comparing master model faces (i.e. target geometric object surfaces, page 3, 0032-0034) and translated model faces (surfaces, page 3, 0038, page 4, 0043).

Per dependent claims 3 and 6: Determining a Z score based on model geometric properties is known in the art and would have been knowingly incorporated by a skilled artisan to determine the accuracy probability and error factor of a master (target) geometric model (object) using the reasoning cited above.

Per dependent claim 4, 5, and 9: These claims are rendered indefinite for the reasons cited above under 35 USC 112(2). The examiner has therefore interpreted the limitations of these claims to be functionally equivalent (i.e. "at least substantially similar") to the equations disclosed Kleyman on page 4, 0046-0051.

Per dependent claims 7-8: Kleyman teaches a model (object) generated by a primary CAD system (Fig. 6) or an alternate CAD system (Fig. 2). Using a Unigraphics

CAD system would merely have been an obvious design choice available to one skilled in the art at the time of the invention.

Per independent claim 10: As noted above, Kleyman discloses a method of determining the dimensional accuracy of a translated 3-D computer model (page 1, 0012, page 2, 0013) relative to a master (target) model (page 1, 0012) inclusive of obtaining the geometric volume properties (page 3, 0032-0034 – object geometric information), obtaining translated model properties (page 4, 0043-0045, Fig. 4), and determining if the translated model is accurate or inaccurate based on a predetermined value (page 4, 0046-0052, Fig. 4). (Also see: Abstract, Background of Invention, Figs. 2-4, 6)

Kleyman does not explicitly disclose determining a Z score based on model geometric properties.

Applicant's specification indicates that, "the z score will be recognized by those of ordinary skill in the art as representing the number of standard deviations between a process mean value and a specified process limit". (Specification: page 6, line 31) Hence, the limitations relating to determining a Z score based on model geometric properties would have been well-known to one of ordinary skill in the art at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Kleyman relating to a method for determining the dimensional accuracy of a translated 3-D computer model relative to a master (target) model, with the well-known technique determining the Z score (as

admitted by applicants), to realize the claimed invention. An obvious motivation exists since this area of technology is highly competitive with many CAD systems and CNC machines available in the market place, and large amounts of money being spent in product development and improvement (See Kleyman, Background/Summary).

Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place, and having access to the teachings of Kleyman, would have knowingly modified the teachings of Kleyman with the well-know technique of determining the Z score, in order to reduce development time and cost.

Per dependent claim 11: Kleyman discloses obtaining the geometric properties (page 3, 0032-0034, i.e. geometric information) of objects that would obviously be inclusive of properties such as volume and area.

Per dependent claims 13, 14 and 17: Determining a Z score based on model geometric properties is known in the art and would have been knowingly incorporated by a skilled artisan to determine the accuracy probability and error factor of a master (target) geometric model (object) using the reasoning cited above.

Per dependent claim 15, 16, and 18: These claims are rendered indefinite for the reasons cited above under 35 USC 112(2). The examiner has therefore interpreted the limitations of these claims to be functionally equivalent (i.e. "at least substantially similar") to the equations disclosed Kleyman on page 4, 0046-0051.

Per dependent claims 12: Kleyman teaches a model (object) generated by a primary CAD system (Fig. 6) or an alternate CAD system (Fig. 2). Using a Unigraphics

CAD system would merely have been an obvious design choice available to one skilled in the art at the time of the invention.

Per independent claims 19: As previously cited above, Kleyman discloses a method of determining the dimensional accuracy of a translated 3-D computer model (page 1, 0012, page 2, 0013) relative to a master (target) model (page 1, 0012) inclusive of obtaining the geometric volume properties (page 3, 0032-0034 – object geometric information), obtaining translated model properties (page 4, 0043-0045, Fig. 4), and determining if the translated model is accurate or inaccurate based on a predetermined value (page 4, 0046-0052, Fig. 4). (Also see: Abstract, Background of Invention, Figs. 2-4, 6)

Kleyman does not explicitly disclose determining a Z score based on model geometric properties.

Applicant's specification indicates that, "the z score will be recognized by those of ordinary skill in the art as representing the number of standard deviations between a process mean value and a specified process limit". (Specification: page 6, line 31) Hence, the limitations relating to determining a Z score based on model geometric properties for determining the accuracy probability and error factor of a master (target) geometric model (object) would have knowingly been incorporated by a skilled artisan in order to at the time of the invention.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Kleyman relating to a method for determining the dimensional accuracy of a translated 3-D computer model relative to a

master (target) model, with the well-known technique determining the Z score (as admitted by applicants), to realize the claimed invention. An obvious motivation exists since this area of technology is highly competitive with many CAD systems and CNC machines available in the market place, and large amounts of money being spent in product development and improvement (See Kleyman, Background/Summary).

Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place, and having access to the teachings of Kleyman, would have knowingly modified the teachings of Kleyman with the well-know technique of determining the Z score, in order to reduce development time and cost.

Per dependent claim 21: Kleyman discloses obtaining the geometric properties (page 3, 0032-0034, i.e. geometric information) of objects that would obviously be inclusive of properties such as volume and area.

Per dependent claim 21, 22 and 23: These claims are rendered indefinite for the reasons cited above under 35 USC 112(2). The examiner has therefore interpreted the limitations of these claims to be functionally equivalent (i.e. "at least substantially similar") to the equations disclosed Kleyman on page 4, 0046-0051.

Per dependent claims 24-25: Kleyman discloses obtaining the geometric properties (page 3, 0032-0034, i.e. geometric information) of objects that would obviously be inclusive of properties such as volume and area.

Regarding claims 27-29: These claims are merely drawn to the same limitations as previously addressed above in claims 1-27 with the addition of "fields" for

representing the display description of model parameters relating to model property, model name, percentage deviation, accuracy, and Z score fields. The use of "fields" for displaying parameter descriptions in computer systems (i.e. "a space in an on-screen computer form where the user can view and enter specific data" – Microsoft Computer Dictionary, 1997) is very well known in the art and would have knowingly incorporated by a skilled artisan at the time of the invention using the reasoning previously cited above.

Allowable Subject Matter

6. *Claims 30-33 and 37-39 are allowed over the prior art of record.*

The following is an examiner's statement of reasons for allowance:

Claims 30-33 and 37-39 use "mean for" language and are given deference in view of In re Donaldson and interpreted in view of 35 U.S.C. § 112 paragraph 6. The "means for" language and the limitations related thereto of claims 30-33 and 37-39 is interpreted within the scope of enablement as provided within the relative embodiment provided within applicant's specification and set forth under the guidelines of MPEP 2181. Specifically, applicant's specification discloses the claimed inventions of the system for determining dimensional accuracy of a translated computer model as follows:

- *Means for receiving a master model geometric property:* page 8, lines 14-27
Figs. 1, 2.

- Means for receiving a translated model geometric property: page 9, lines 1-15, page 12, line 7 to page 14, line 4, Figs. 1-3.
- Means for determining a Z score based on the master model geometric property: page 9, line 17 to page 11, line 23, page 13, line 10-30, Figs. 1-3.

In this case, the prior art does not disclose the specific sequence of steps for receiving a master model geometric property, receiving a translated model geometric property, and determining a Z score based on the master model geometric property as disclosed in the relative embodiment of applicant's specification as noted above.

Dependent claims 31-33 and 37-39 are allowable as being depended from independent claim 30.

Conclusion

10. *The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Careful consideration should be given prior to applicant's response to this Office Action.*

U.S. Patent 6,614,430 issued to Rappoport teaches CAD object translation and error detection.

"Repairing CAD Models", G. Barequet, IEEE 0-8186-8262-0/97, IEEE 1997 teaches detection/correction of CAD object translation errors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778

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and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

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